

### **III. REMARKS/ARGUMENTS**

#### **A. Status of the Application**

Claims 33, 40, 47, 53-55, 58, 106, 110, 115, 117, 121, 125, 128-130, 132, 135-137 and 139-152 are now pending. Claims 43-46, 49, 61, 62, 65, 113-114, 116, 118-120, 131 and 134 are cancelled herein. Claims 1-32, 34-39, 41-42, 48, 50-52, 56-57, 59-60, 63-64, 66-105, 107-109, 111-112, 122-124, 126-127, 133 and 138 were previously cancelled. Claims 33, 40, 47, 53-55, 58, 106, 110, 115, 117, 121, 125, 128-130, 132 and 135-137 are amended. Claims 139-152 have been added. The amendments to claims 33, 40, 47, 53-55, 58, 106, 110, 115, 117, 121, 125, 128-130, 132 and 135-137 were made and new claims 139-152 were added to enhance the Applicants' patent portfolio with claims of varying scope and no new matter has been added by the amendments and new claims presented herein. Favorable consideration and allowance of claims 33, 40, 47, 53-55, 58, 106, 110, 115, 117, 121, 125, 128-130, 132, 135-137 and 139-152 in view of the following remarks are respectfully requested.

#### **B. "Dry Mix" and "Dry Materials"**

The Office Action states on page 4 that:

[I]t is uncertain from the specification as to what the definition of "dry mix" actually encompasses to be able to ascertain this weight percentage for the range.

In this regard, Applicant notes that paragraph [0012] of the present specification provides a definition of the term "dry mix". Specifically, paragraph [0012] discloses that in one embodiment:

[T]he wellbore treating fluid is prepared as a dry mix including the zeolite and optionally the viscosifier, organic polymer and dispersants. Prior to use as a wellbore treating fluid, varying ratios of dry mix, weighting material, carrier fluid and optionally surfactants are combined to yield the desired wellbore treating fluid density and viscosity.

Accordingly, the import of paragraph [0012] of the present specification is that certain dry materials may be combined to form a dry mix prior to being combined with a weighting material, a carrier fluid and optionally surfactants to form a wellbore treating fluid such as a spacer fluid. The dry materials that can be combined to form the dry mix are the zeolite and optionally a viscosifier such as a clay, an organic polymer and dispersants.

In respect to the claimed compositions, Applicants note that:

- Independent claims 33 and 106 have been amended to delete the term “dry materials”;
- Independent claim 121 has been amended to specify that the claimed composition includes a “dry mix” which comprises a zeolite and a clay;
- Independent claim 139 has been added and specifies a composition that includes a “dry mix” which comprises a zeolite, a clay and a polymeric material; and
- Independent claim 147 has been added and specifies a composition that includes a “dry mix” which comprises a zeolite, a clay and a dispersant.

Accordingly, in light of the foregoing discussion, it is respectfully submitted that the specification of the present application provides a definite and clear definition of term “dry mix” and that the term as used in the claims is consistent with the specification.

**C. Rejection of Claims under 35 U.S.C. §103(a) over Chaux ‘734**

Claims 33, 40, 43-47, 49, 53-55, 58, 61-62, 65, 106, 110, 113-121, 125, 128-132 and 134-137 stand rejected under 35 U.S.C. §103(a) over U.S. Patent No. 4,548,734 to Chaux (“Chaux ‘734”). As noted above, claims 43-46, 49, 61-62, 65, 113-114, 116, 118-120, 131 and 134 have been cancelled herein. Insofar as it may be applied against the present claims, this rejection is respectfully traversed.

To sustain the present rejection of claims 33, 40, 47, 53-55, 58, 106, 110, 115, 117, 121, 125, 128-130, 132 and 135-137 under 35 U.S.C. § 103(a) over Chaux ‘734, a prima facie case of obviousness must be established. In *KSR Int’l. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1739 (2007), the Court stated that “a patent composed of several elements **is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.** Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a **reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.** This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered,

and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *Id.* at 1741 (emphasis added). As the PTO recognizes in MPEP § 2142:

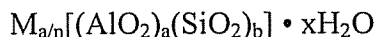
*...The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...*

It is submitted that, in the present case, a prima facie case of obviousness has not been factually supported for the following reasons.

**1. Claims 33, 40, 47, 53-55, 58 and 135**

Claim 33 is drawn to a composition for forming a wellbore spacer fluid comprising a zeolite, a clay and a polymeric material.

The zeolite is present from about 60 to 70% by weight of the composition and is represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH<sub>4</sub>, CH<sub>3</sub>NH<sub>3</sub>, (CH<sub>3</sub>)<sub>3</sub>NH, (CH<sub>3</sub>)<sub>4</sub>N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in the range of from greater than or equal to 1 to less than or equal to 5; and

x represents number of moles of water entrained into the zeolite framework.

The clay is present from about 20 to 30% by weight of the composition and is selected from kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite.

The polymeric material is present from about 1 to 3% by weight of the composition and is selected from hydroxyethylcellulose, cellulose, carboxyethylcellulose, carboxymethylcellulose, carboxymethylhydroxyethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, methylhydroxypropylcellulose, methylcellulose, ethylcellulose, propylcellulose, ethylcarboxymethylcellulose, methylethylcellulose, hydroxypropylmethylcellulose, starch, guar gum, locust bean gum, tara, konjak, karaya gum, welan gum, xanthan gum, galactomannan gums, succinoglycan gums, scleroglucan gums, tragacanth gum, arabic gum, ghatti gum, tamarind gum, carrageenan, carboxymethyl guar,

hydroxypropyl guar, carboxymethylhydroxypropyl guar, polyacrylate, polymethacrylate, polyacrylamide, maleic anhydride, methylvinyl ether copolymers, polyvinyl alcohol and polyvinylpyrrolidone.

Each of claims 40, 47, 53-55, 58 and 135 depends directly from claim 33, and therefore each includes at least the foregoing elements.

Chaux '734 discloses a composition that includes a water soluble gum or polymer, a water donor material and optionally an anionic or nonionic surfactant (column 8, lines 37-44). According to Chaux '734, the water donor material may be fine precipitated silica (col. 6, line 44), hydrated silica gel (col. 6, line 52), dehydrated silica gel (col. 6, lines 62-63), alumina hydrate (col. 7, line 1), hydrated silica aluminates in the form of argillas, or natural or synthetic zeolites (col. 7, lines 16-17) and hydrates of various inorganic or organic metal salts (col. 7, lines 52-55). Representative argillas include kaolinite, montmorillonite, bentonite, attapulgite and sepiolite (col. 7, lines 18-28). Representative hydrates of inorganic or organic metal salts include calcium carbonate hexahydrate (col. 8, line 11). The anionic or nonionic surfactant may be in a solid or liquid state (col. 10, lines 49-50).

As noted above, the composition of claim 33 includes a zeolite, a clay and a polymeric material. In terms of comparing the composition of claim 33 to the composition disclosed by Chaux '734, the zeolite and clay components of the claimed composition correspond to the water donor component of the Chaux '734 composition and the polymeric material of the claimed composition corresponds to the water soluble gum component of the Chaux '734 composition.

According to Chaux '734, the process for preparing the disclosed compositions comprises:

"mixing, in the dry state, the water donor, onto which water may be adsorbed, with the gum, and optionally adding thereto the anionic and/or nonionic surfactant." (Col. 11, lines 56-60).

In addition, Chaux '734 discloses that:

"The process of the invention provides compositions in the form of a powder having excellent storage stability." (Col. 12, lines 20-22).

While the gum included in the compositions disclosed by Chaux '734 is water-soluble, Chaux '734 consistently describes the gum as being in a dry state when it is mixed with the water donor.

Chaux '734 further discloses that the composition includes:

- (1) 30 to 70% by weight of water soluble gum;
- (2) 7 to 40% by weight of water donor;
- (3) 0 to 10% by weight of surfactant; and
- (4) 15 to 37% by weight of water. (Col. 11, lines 37-43).

Therefore, the composition according to Chaux '734 having the highest possible amount of the water donor as a percentage of the components that are mixed in the dry state, is one that includes the maximum amount of the water donor (40% by weight), the minimum amount of the water soluble gum (30% by weight), no surfactant (0% by weight) and the remainder made up of water (30% by weight). In such a composition, the components of the composition that are mixed in a dry state, i.e. the water soluble gum and the water donor, account for 70% by weight of the composition. Consequently, the compositions disclosed by Chaux '734 include at most 57% by weight of the water donor material (40/70) in terms of the components that are mixed in the dry state.

Similarly, the composition according to Chaux '734 having the least possible amount of the water soluble gum as a percentage of the components that are mixed in the dry state, is one that includes the maximum amount of the water donor (40% by weight), the minimum amount of the water soluble gum (30% by weight), the maximum amount of the surfactant as a solid (10% by weight) and the remainder made up of water (20% by weight). In such a composition, the components of the composition that are mixed in a dry state, i.e. the water soluble gum, the water donor and the surfactant, account for 80% by weight of the composition. Consequently, the compositions disclosed by Chaux '734 include at least 37.5% by weight of the water soluble gum (30/80) in terms of the components that are mixed in the dry state.

As noted above, the composition of claim 33 includes from about 60-70% by weight of a zeolite and from about 20-30% by weight of a clay. Thus, contrary to the composition disclosed by Chaux '734 which includes at most 57% by weight of the water donor component in terms of the components that are mixed in the dry state, the composition of claim 33 includes at least about 80% by weight of components that correspond to the water donor component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 33 requires the inclusion of a significantly higher percentage of components that correspond to the water donor component compared to the composition disclosed by Chaux '734.

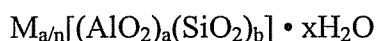
Also as noted above, the composition of claim 33 includes from about 1-3% by weight of a polymeric material. Thus, contrary to the composition disclosed by Chaux '734 which includes at least 37.5% by weight of the water soluble gum component in terms of the components that are mixed in the dry state, the composition of claim 33 includes at most about 3% by weight of components that correspond to the water soluble gum component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 33 requires the inclusion of a significantly lower percentage of components that correspond to the water soluble gum component compared to the composition disclosed by Chaux '734.

In view of the foregoing, Applicants respectfully submit that Chaux '734 fails to disclose each and every element of claim 33. Therefore, it is respectfully submitted that the initial burden of factually supporting an alleged prima facie case of obviousness of independent claim 33 under 35 U.S.C. §103(a) over Chaux '734 has not been met. It is further respectfully submitted that the initial burden of factually supporting an alleged prima facie case of obviousness of dependent claims 40, 47, 53-55, 58 and 135 under 35 U.S.C. §103(a) over Chaux '734 has not been met, for at least the same reasons that apply to claim 33. For the foregoing reasons, Applicants request that the rejection of claims 33, 40, 47, 53-55, 58 and 135 under 35 U.S.C. §103(a) over Chaux '734 be withdrawn.

**2. Claims 106, 110, 115, 117 and 136**

Claim 106 is drawn to a composition for forming a wellbore spacer fluid which includes a zeolite, a clay and a dispersant.

The zeolite is present from about 60 to 70% by weight of the composition and is represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH<sub>4</sub>, CH<sub>3</sub>NH<sub>3</sub>, (CH<sub>3</sub>)<sub>3</sub>NH, (CH<sub>3</sub>)<sub>4</sub>N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in the range of from greater than or equal to 1 to less than or equal to 5; and

x represents the number of moles of water entrained into the zeolite framework.

The clay is present from about 20 to 30% by weight of the composition and is selected from kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite.

The dispersant is present from about 1 to 18% by weight of the composition and is selected from sodium naphthalene sulfonate condensed with formaldehyde, sulfonated styrene maleic anhydride copolymer, sulfonated vinyltoluene maleic anhydride copolymer, sulfonated acetone condensed with formaldehyde, lignosulfonates and interpolymers of acrylic acid, allyloxybenzene sulfonate, allyl sulfonate and non-ionic monomers.

Each of claims 110, 115, 117 and 136 depends directly from claim 106, and therefore each includes at least the foregoing elements.

As noted above, the composition of claim 106 includes a zeolite, a clay and a dispersant. In terms of comparing the composition of claim 106 to the composition disclosed by Chaux '734, the zeolite and clay components of the claimed composition correspond to the water donor component of the Chaux '734 composition. The composition disclosed by Chaux '734 does not include a component that corresponds to the dispersant of the claimed composition.

Also, as noted above, the composition of claim 106 includes from about 60-70% by weight of a zeolite and from about 20-30% by weight of a clay. Thus, contrary to the composition disclosed by Chaux '734 which includes at most 57% by weight of the water donor component in terms of the components that are mixed in the dry state, the composition of claim 106 includes at least about 80% by weight of components that correspond to the water donor component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 106 requires the inclusion of a significantly higher percentage of components that correspond to the water donor component compared to the composition disclosed by Chaux '734.

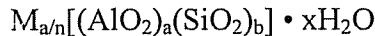
Moreover, the composition of claim 106 includes from about 1 to 18% by weight of a dispersant selected from a group of specified dispersants. As noted above, Chaux '734 does not disclose or suggest a composition that includes a dispersant much less a dispersant selected from the group of dispersants set forth in claim 106.

In view of the foregoing, Applicants respectfully submit that Chaux '734 fails to disclose each and every element of claim 106. Therefore, it is respectfully submitted that the initial burden of factually supporting an alleged prima facie case of obviousness of independent claim 106 under 35 U.S.C. §103(a) over Chaux '734 has not been met. It is further respectfully

submitted that the initial burden of factually supporting an alleged prima facie case of obviousness of dependent claims 110, 115, 117 and 136 under 35 U.S.C. §103(a) over Chaux '734 has also not been met, for at least the same reasons that apply to claim 106. For the foregoing reasons, Applicants request that the rejection of claims 106, 110, 115, 117 and 136 under 35 U.S.C. §103(a) over Chaux '734 be withdrawn.

**3. Claims 121, 125, 128-130, 132 and 137**

Claim 121 is drawn to a composition comprising a combination of a dry mix, a weighting material, a carrier fluid and a surfactant. The dry mix comprises a zeolite and a clay. The zeolite is present from about 60 to 70% by weight of the dry mix and is represented by the formula:



where

M represents one or more cations selected from the group consisting of Na, K, Mg, Ca, Sr, Li, Ba, NH<sub>4</sub>, CH<sub>3</sub>NH<sub>3</sub>, (CH<sub>3</sub>)<sub>3</sub>NH, (CH<sub>3</sub>)<sub>4</sub>N, Ga, Ge and P;

n represents the cation valence;

the ratio of b:a is in the range of from greater than or equal to 1 to less than or equal to 5; and

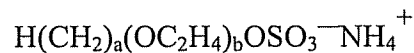
x represents the number of moles of water entrained into the zeolite framework.

The clay is present from about 20 to 30% by weight of the dry mix and is selected from the group consisting of kaolinites, montmorillonite, bentonite, hydrous micas, attapulgite, sepiolite, and laponite.

The weighting material is selected from the group consisting of barite, hematite, manganese tetraoxide, ilmenite and calcium carbonate.

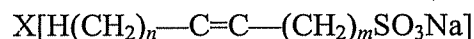
The surfactant is selected from:

- (a) an ethoxylated alcohol ether sulfate of the formula:



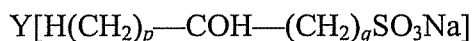
wherein a is an integer in the range of from about 6 to about 10 and b is an integer in the range of from about 3 to about 10;

- (b) a sodium salt of  $\alpha$ -olefinic sulfonic acid which is a mixture of compounds of the formulas:





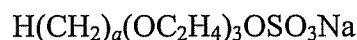
and



wherein:

- n and m are individually integers in the range of from about 6 to about 16;
- p and q are individually integers in the range of from about 7 to about 17; and
- X and Y are fractions with the sum of X and Y being 1;

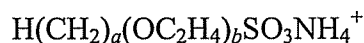
- (c) a composition having the formula:



wherein:

- a is an integer in the range of from about 6 to about 10;

- (d) oxyalkylated sulfonate;
- (e) an alcohol ether sulfonate of the formula:



wherein:

- a is an integer in the range of from about 6 to about 10; and
- b is an integer in the range of from about 3 to about 10;

- (f) cocoamine betaine;
- (g) an alkyl or alkene amidopropyl betaine having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl;  
and

- (h) an alkyl or alkene amidopropyl dimethylamine oxide surfactant having the formula:



wherein R is a radical selected from the group of decyl, cocoyl, lauryl, cetyl and oleyl.

Each of claims 125, 128-130, 132 and 137 depends directly from claim 121 and therefore each includes at least the foregoing elements.

As noted above, the composition of claim 121 comprises a dry mix that includes a zeolite and a clay. In terms of comparing the composition of claim 121 to the composition disclosed by Chaux '734, the zeolite and clay components of the composition of claim 121 correspond to the water donor component of the Chaux '734 composition.

Also, as noted above, the composition of claim 121 comprises a dry mix that includes from about 60-70% by weight of a zeolite and from about 20-30% by weight of a clay. Thus, contrary to the composition disclosed by Chaux '734 which includes at most 57% by weight of the water donor component in terms of the components that are mixed in the dry state, the composition of claim 121 comprises a dry mix that includes at least about 80% by weight of components that correspond to the water donor component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 121 requires the inclusion of a significantly higher percentage of components that correspond to the water donor component compared to the composition disclosed by Chaux '734.

In view of the foregoing, Applicants respectfully submit that Chaux '734 fails to disclose each and every element of claim 121. Therefore, it is respectfully submitted that the initial burden of factually supporting an alleged prima facie case of obviousness of independent claim 121 under 35 U.S.C. §103(a) over Chaux '734 has not been met. It is further respectfully submitted that the initial burden of factually supporting an alleged prima facie case of obviousness of dependent claims 125, 128-130, 132 and 137 under 35 U.S.C. §103(a) over Chaux '734 has also not been met, for at least the same reasons that apply to claim 121. For the foregoing reasons, Applicants request that the rejection of claims 121, 125, 128-130, 132 and 137 under 35 U.S.C. §103(a) over Chaux '734 be withdrawn.

**D. New Claims 139-152**

New independent claim 139 is drawn to a composition comprising a combination of a dry mix, a weighting material and a carrier fluid. The dry mix includes a zeolite present from about 60 to 70% by weight of the dry mix, a clay present from about 20 to 30% by weight of the dry mix and a polymeric material present from about 1 to 3% by weight of the dry mix.

Similar to the discussion above with respect to claim 33, contrary to the composition disclosed by Chaux '734 which includes at most 57% by weight of the water donor component in terms of the components that are mixed in the dry state, the dry mix of claim 139 includes at least about 80% by weight of components that correspond to the water donor component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 139 requires the inclusion of a significantly higher percentage of components that correspond to the water donor component compared to the composition disclosed by Chaux '734.

Also as noted above, the composition of claim 139 includes a dry mix that includes from about 1-3% by weight of a polymeric material. Thus, contrary to the composition disclosed by Chaux '734 which includes at least 37.5% by weight of the water soluble gum component in terms of the components that are mixed in the dry state, the composition of claim 139 includes at most about 3% by weight of components that correspond to the water soluble gum component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 139 requires the inclusion of a significantly lower percentage of components that correspond to the water soluble gum component compared to the composition disclosed by Chaux '734.

In view of the foregoing, Applicants respectfully submit that Chaux '734 fails to disclose each and every element of claim 139. Therefore, it is respectfully submitted that claim 139 as well as claims 140-146 which depend therefrom, distinguish patentably over Chaux '734.

New independent claim 147 is drawn to a composition comprising a combination of a dry mix, a weighting material and a carrier fluid. The dry mix includes a zeolite present from about 60 to 70% by weight of the dry mix, a clay present from about 20 to 30% by weight of the dry mix and a dispersant present from about 1 to 18% by weight of the dry mix.

Similar to the discussion above with respect to claim 106, contrary to the composition disclosed by Chaux '734 which includes at most 57% by weight of the water donor component in terms of the components that are mixed in the dry state, the dry mix of claim 147 includes at least about 80% by weight of components that correspond to the water donor component of Chaux '734. Clearly, in terms of the components that are mixed in the dry state, the composition of claim 147 requires the inclusion of a significantly higher percentage of components that correspond to the water donor component compared to the composition disclosed by Chaux '734.

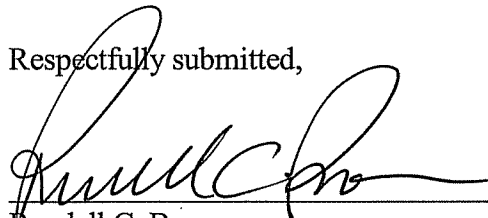
In view of the foregoing, Applicants respectfully submit that Chaux '734 fails to disclose each and every element of claim 147. Therefore, it is respectfully submitted that claim 147 as well as claims 148-152 which depend therefrom, distinguish patentably over Chaux '734.

#### **E. Conclusion**

Claims 33, 40, 47, 53-55, 58, 106, 110, 115, 117, 121, 125, 128-130, 132, 135-137 and 139-152 are now pending. In view of the foregoing remarks, allowance of claims 33, 40, 47, 53-55,

58, 106, 110, 115, 117, 121, 125, 128-130, 132, 135-137 and 139-152 is respectfully requested. The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Randall C. Brown', written over a horizontal line.

Randall C. Brown

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Date: 21 November 2008

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